

REMARKS**A. Background**

The present amendment is filed in response to the Examiner's Office Action mailed July 15, 2004. Claims 1-10, 22-25, and 32-34 were pending. Claims 11-21 and 26-31 were previously withdrawn from consideration. Claims 1, 22, and 33 are amended. Claims 1-10, 22-25, and 32-34 remain pending in view of the above amendments.

Reconsideration is respectfully requested in view of the above amendments and following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

B. Continued Examination Under 37 C.F.R. § 1.114

Applicant thanks the Examiner for his cooperation in reconsidering the present application pursuant a Request for Continued Examination under 37 C.F.R. § 1.114, and for entering Applicant's submission filed April 30, 2004.

C. Objection to the Specification

The Office Action objects to the Specification under 35 U.S.C. § 132 for the alleged introduction of new matter into the disclosure. In response to the objection, notwithstanding its belief to the contrary, Applicant has canceled the paragraph entered into the disclosure of the present application as a result of Applicant's previous submission on April 30, 2004. Removal of the objection under Section 132 is therefore respectfully requested.

D. Rejections Under 35 U.S.C. § 103

The Office Action rejects claims 1, 4, 6-8, 22, 23, 25, and 32-34 under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,300,799 to Nakamura, *et al.* ("*Nakamura*") in view of United States Patent No. 5,877,054 to *Yamauchi*. As will be shown below, however, *Nakamura* and *Yamauchi* – assuming *arguendo* that they qualify as references under Section 103 – fail to teach or suggest, either alone or in combination, each and every element of the pending claims, and thus do not make obvious the present claimed invention.

The teachings of *Nakamura* have been previously discussed. With respect to the second reference, *Yamauchi* teaches a method of producing a nonvolatile semiconductor memory. In particular, and as shown in Figures 24-28, *Yamauchi* discloses a method of forming a memory cell, the memory cell having various elements including a semiconductor substrate 31 in which source and drain diffusion regions 9 and 10 are deposited. Various other memory cell components are formed atop the substrate with respect to the source and drain, including a tunnel 33, gate 34, floating gate 35, and ONO film 36. The source and drain diffusion layers are formed in the substrate to be in contact with one another, but are split in their operation between adjacent memory cells. See *Yamauchi*, col. 19, l. 24-col. 20, l. 13.

The present claimed invention is substantially distinct from the devices taught by *Nakamura* and *Yamauchi*. Specifically, amended independent claim 1 requires, in a single transistor ferroelectric memory cell, the presence of a semiconductor substrate having a source and a drain that is spaced apart from the source, "*said drain also being spaced apart from sources and drains of adjacent ferroelectric memory cells, wherein said drain is not shared with adjacent ferroelectric memory cells.*" Neither *Nakamura* nor *Yamauchi* disclose such a memory cell structure. Indeed, in contrast to claim 1, *Nakamura* discloses source/drain diffusion regions 5 "which serve for both a source and a drain" for the transistors of *Nakamura's* memory cells.

Nakamura, col. 3, ll. 64-66. As such, the source/drain diffusion regions are shared by *Nakamura's* neighboring memory cells. See col. 2, ll. 42-44. Thus, *Nakamura* fails to teach at least a memory cell wherein the drain is *not shared* with adjacent ferroelectric memory cells, as required by claim 1.

Similarly, *Yamauchi* also fails to teach or suggest all required elements of amended claim 1. In particular, *Yamauchi* teaches a "source diffusion layer 10 of one memory cell [that] *is in contact with* the drain diffusion layer 9 of an adjacent memory cell." *Yamauchi* col. 20, ll. 10-12 (emphasis added). This is in direct contravention to the above-recited elements of amended claim 1, which require a drain that is spaced apart not only from the source of the respective memory cell, but *from sources and drains of adjacent memory cells* as well.

Moreover, it appears that the teachings of *Nakamura* actually teach away from those of *Yamauchi*. In detail, the attached drain and source of *Yamauchi* are respectively associated with distinct memory cells (see *Yamauchi*, col. 12, ll. 9-13), while the source/drain diffusion regions of *Nakamura* are commonly shared between adjacent memory cell transistors (see *Nakamura*, col. 2, ll. 42-44; col. 3, ll. 65-66). In addition, *Nakamura* utilizes ferroelectric components (*i.e.*, ferroelectric capacitors FC1-FC8) in its memory cell construction. The memory cell of *Yamauchi* uses no such components.

In light of the above discussion, Applicant submits that at least the above-recited elements of amended claim 1 are neither taught nor suggested by *Nakamura* or *Yamauchi*. Applicant therefore submits that a *prima facie* case of obviousness does not exist with respect to independent claim 1 in view of the cited references, and respectfully requests that rejection of the claim under Section 103 be removed. Moreover, inasmuch as claims 2-10 are dependent upon independent claim 1, Applicant submits that these claims are also allowable for at least the reasons given above.

Amended independent claims 22 and 33 are also patentably distinct for at least the reasons given above. In particular, claim 22 discloses a ferroelectric memory cell requiring "a drain that is spaced apart from the source and from drains and sources of adjacent ferroelectric memory cells, wherein the drain is not shared with adjacent ferroelectric memory cells." Similarly, claim 33, which discloses a ferroelectric memory cell, requires "a drain in a spaced apart configuration with respect to the source and drains and sources of adjacent ferroelectric memory cells, wherein the drain is not included as a component of an adjacent ferroelectric memory cell." Again, these limitations are found neither in *Nakamura* nor *Yamauchi*. Thus, claims 22 and 33, as well as claims 23-25 and 34 that respectfully depend therefrom, are allowable.

The Office Action also rejects certain claims with respect to various cited references. In particular, claims 2 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nakamura/Yamauchi* in view of United States Patent No. 5,506,748 to Hoshiba. Claim 3 is rejected under Section 103(a) as being unpatentable over *Nakamura/Yamauchi* in view of United States Patent No. 6,100,558 to Krivokapic, *et al.* Claim 5 is rejected under Section 103(a) as being unpatentable over *Nakamura/Yamauchi* in view of a publication entitled "Introduction to Microelectronic Fabrication, Volume V," by Richard C. Jaeger. Claim 9 is rejected under Section 103(a) as being unpatentable over *Nakamura/Yamauchi* in view of United States Patent No. 6,339,008 B1 to Takenaka and claim 10 is rejected under Section 103(a) as being unpatentable over *Nakamura/Yamauchi* in view of United States Patent No. 6,172,392 B1 to Schmidt, *et al.*

Applicant notes that each of the above rejections is at least partly based on the *Nakamura* and *Yamauchi* references. Applicant further notes that each of the rejected claims as set forth above is dependent upon either amended independent claims 1, 22, or 33. As was previously

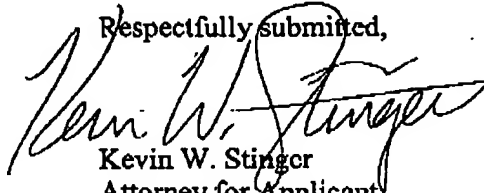
discussed, the teachings of *Nakamura* and *Yamauchi* are inapplicable to the present invention as applied to claims 1, 22, and 33 for failing to teach or suggest each of the limitations contained in those claims. Thus, *Nakamura* and *Yamauchi* are inapplicable to the present claims rejected under Section 103 for at least the above reasons, that is, their failure to teach or suggest all of the claim limitations contained not only in independent claims 1, 22, or 33, but also the limitations contained in the presently rejected dependent claims. Thus, the Office Action has failed to establish a *prima facie* case of obviousness. Applicant therefore respectfully submits that claims 2, 3, 5, 9, 10, 24 and the other dependent claims are allowable and that the above rejections under Section 103 should be withdrawn.

CONCLUSION

In view of the discussion and amendments submitted herein, Applicant respectfully submits that each of the pending claims 1-10, 22-25, and 32-34 is now in condition for allowance. Therefore, reconsideration of the rejections is requested and allowance of those claims is respectfully solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that can be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 15th day of October, 2004.

Respectfully submitted,



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